ABSTRACT

A method for using a double resonance effect within a grating-coupled waveguide (GCW) sensor, as generated from a light beam with a given span of wavelengths or angles, is provided. The method can be used for label-independent detection of biological and chemical agents, to interrogate biological-binding events or chemical reactions within a sensing region at increased sensitivity, and with decreased sensitivity to environmental perturbations. Also described is an optical interrogation system incorporating the method.